

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

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In re Patent Application of:  
Petra Cirpus et al.

Application No.: 10/590,457

Confirmation No.: 8604

Filed: August 25, 2006

Art Unit: 1638

For: METHOD FOR PRODUCING  
POLYUNSATURATED FATTY ACIDS IN  
TRANSGENIC PLANTS

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Examiner: Elizabeth F. McElwain

**RESPONSE TO RESTRICTION REQUIREMENT**

MS Amendment  
Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Dear Sir:

In response to the restriction requirement set forth in the Office Action mailed December 10, 2009, Applicants hereby provisionally elect Group I, claims 1-6 and 10-14, drawn to a process of producing compounds of formula I, with traverse. Applicants further elect SEQ ID NO: 193 encoding SEQ ID NO: 194 for  $\Delta 6$ -desaturase, SEQ ID NO: 27 encoding SEQ ID NO: 28 for  $\Delta 6$ -elongase, SEQ ID NO: 11 encoding SEQ ID NO: 12 for  $\Delta 5$ -desaturase, SEQ ID NO: 83 encoding SEQ ID NO: 84 for  $\Delta 5$ -elongase, and SEQ ID NO: 41 encoding SEQ ID NO: 42 for  $\Delta 4$ -desaturase, with traverse. Applicants respectfully traverse and urge reconsideration and withdrawal of the restriction requirement for the following reasons.

Because this application is a national stage filing pursuant to 35 U.S.C. § 371, unity of invention under PCT Rule 13.1 and 13.2 is the applicable standard. Unity of invention is fulfilled “when there is a technical relationship among those inventions involving one or more of the same or corresponding special technical feature. The expression “special technical feature” shall mean those technical features that define a contribution which each of the claimed inventions, considered as a whole, makes over the prior art.” (PCT Rule 13.2).

The Examiner alleges that Groups I-XIII do not relate to a single inventive concept because they lack the same or corresponding special technical feature under PCT Rule 13.2. The

Examiner identifies the technical feature linking these Groups as being a process of producing compounds of formula I by introducing into a plant coding sequences for a  $\Delta 6$ -desaturase, a  $\Delta 6$ -elongase, a  $\Delta 5$ -desaturase, a  $\Delta 5$ -elongase, and a  $\Delta 4$ -desaturase. However, the Examiner alleges that this technical feature is not novel and thus, does not make a contribution over the art, citing to Drexler *et al.* (hereinafter "Drexler"). In support, the Examiner points to pages 794-795 of Drexler for teaching the aforementioned process. Accordingly, the Examiner concludes that Groups I-XIII do lack unity. Applicants respectfully disagree that the invention of the present application does not make a contribution over Drexler and further disagree with the Examiner's characterization of the cited Drexler reference.

As stated in the specification and repeated in claim 1, the present application relates to a process for the production of compounds of formula I in the seed of transgenic plants, with a content of at least 20% by weight based on the total lipid content, by introducing, into the organism, nucleic acids which encode a  $\omega 3$ -desaturase, a  $\Delta 12$ -desaturase,  $\Delta 6$ -desaturase, a  $\Delta 6$ -elongase, a  $\Delta 5$ -desaturase, a  $\Delta 5$ -elongase, and/or a  $\Delta 4$ -desaturase. Thus, contrary to the Examiner's assertion, the technical feature linking the claims of the present application is a process of producing compounds of the general formula I **in the seed of transgenic plants with a content of at least 20% by weight** based on the total lipid content.

Drexler discloses metabolic engineering of fatty acids for breeding of new oilseed crops. It reviews projects relating to aspects of changes in fatty acid profiles in plant oils. In the section entitled "Very long-chain polyunsaturated fatty acids" at pages 794-795, the portion of Drexler's teaching relied upon by the Examiner, and Figure 6 at page 795, Drexler summarizes the biosynthesis pathways of very long chain polyunsaturated fatty acids (PUFAs), such as arachidonic acid, eicosapentaenoic acid and docosapentaenoic acid. However, Drexler does not disclose, or even suggest, and the Examiner fails to point to the particular portion where the alleged teaching could be located, a process in which the compounds of the general formula I are produced **in the seed of the transgenic plants with a content of at least 20% by weight** based on the total lipid content. Accordingly, it is respectfully submitted that the Patent Office has not established the presence of the special technical feature of Applicants' claims in the prior art. For at least the above reasons, Applicants respectfully request that the Examiner reconsider the restriction requirement and examine all the claims in one application.

Alternatively, Applicants respectfully request that the claims of Groups I-VII being examined together. As discussed above, the technical feature linking the claims of the present application is a process of producing compounds of the general formula I in the seed of transgenic plants with a content of at least 20% by weight based on the total lipid content. Such a process can be achieved by introducing into a plant nucleic acids encoding a  $\Delta 6$ -desaturase, a  $\Delta 6$ -elongase, a  $\Delta 5$ -desaturase, a  $\Delta 5$ -elongase, and a  $\Delta 4$ -desaturase as recited in the claims of Group I, or it can also be achieved by further introducing into the plant an additional nucleic acid encoding a  $\omega 3$ -desaturase as recited in the claims of Group II. Similarly, such a process can also be achieved by the processes recited in the claims of Groups III-VII. Because there would be no additional burden on the Examiner to search all these Groups together, these Groups should be examined together.

For at least the above reasons, Applicants respectfully request that the restriction requirement be reconsidered and withdrawn entirely. Alternatively, withdrawal of the restriction between the claims of Groups I-VII is respectfully requested because these claims are related to a common technical feature, and therefore, it would not be burdensome to consider them together with the provisionally elected Group I.

Applicants reserve all rights to pursue the non-elected species in one or more divisional applications.

This response is filed within the one month period for response from the mailing of the Office Communication, to and include January 11, 2010, pursuant to 37 CFR § 1.7(a). No fee is believed due. However, if a fee is due, please charge our Deposit Account No. 03-2775, under Order No. 13987-00020-US from which the undersigned is authorized to draw.

Respectfully submitted,

By /s/ Hui-Ju Wu  
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